

REMARKS

Upon entry of the foregoing Amendment, claims 1, 3, 5, 11-12, 30, 34-41, 43, and 46-64 are pending in the application. Claims 1, 3, 38-41, and 53-54 have been amended. No claims have been cancelled or newly added. Applicant believes that this Amendment does not add new matter. In view of the foregoing Amendment and the following Remarks, allowance of all the pending claims is requested.

REJECTION UNDER 35 U.S.C. § 103

A. CLAIMS 1, 3, 5, 11-12, 30, 34-41, 43, AND 46-58

The Examiner has rejected claims 1, 3, 5, 11-12, 30, 34-41, 43, and 46-58 under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent No. 6,446,200 to Ball et al. ("Ball") in view of an article entitled "Data Mining" to Basu ("Data Mining") and U.S. Patent No. 6,311,175 to Adriaans et al. ("Adriaans"). This rejection is improper and must be withdrawn for at least the reason that the references relied upon, either alone or in combination, fail to disclose, teach, or suggest each and every feature of the claimed invention.

More particularly, Ball, Data Mining, and Adriaans, either alone or in combination, fail to disclose, teach, or suggest "mapping . . . a plurality of component parameters monitored for [a] plurality of network components [that support a service to a] service parameter that represents the performance of the service," "executing . . . one or more data mining algorithms to discover a subset of the plurality of component parameters that have a most influence on the service parameter," and "identifying . . . a function that takes one or more input arguments corresponding to the subset of the plurality of component parameters having the most influence on the service parameter and infers the value for the service parameter from the one or more input arguments to provide a many-to-one mapping between the subset of the plurality of component parameters and the value for the service parameter," as recited in amended independent claim 1, for example.

Although the Examiner has conceded that Ball does not appear to teach features that relate to mapping various monitored component parameters associated with various network

components that support a service to a service parameter that represents performance associated with the service, executing data mining algorithms to discover a subset of the various component parameters that most influence the service parameter, or identifying a function that provides a many-to-one mapping between the subset of the various component parameters and the value for the service parameter, the Examiner alleges that Data Mining teaches features that relate to mapping monitored component parameters to a service parameter and that Adriaans teaches features that relate to executing data mining algorithms to discover a subset of the component parameters that most influence the service parameter and identifying a function that provides a many-to-one mapping between the discovered subset and the value for the service parameter. Applicant disagrees with the Examiner's assessment for at least the reason that neither Data Mining nor Adriaans disclose, teach, or suggest techniques that may be used to derive a function that takes certain input arguments corresponding to values associated with certain component parameters that most influence a service parameter in order to provide a many-to-one mapping between the values associated with such component parameters and a value associated with a service parameter.

For example, to the extent that Data Mining describes techniques that relate to "selecting, exploring, and modeling large amounts of data to uncover previously unknown patterns for a business advantage," Data Mining only generally describes how "techniques including statistical analysis, visualization, decision trees, and neural networks [may be combined] to explore large amounts of data and discover relationships and patterns that shed light on business problems." However, Data Mining does not disclose, teach, or suggest how to apply the data mining techniques described therein to problems that relate to service level management in computer networks, much less to discovering certain component parameters that most influence a service parameter that measures the performance associated with a service provided over a computer network. In other words, even assuming *arguendo* that the Examiner has correctly alleged that "Data Mining fairly teaches . . . determining various parameters related to the mapping components, and using the determined parameters for determining other related monitoring issues," which Applicant does not concede, Data Mining nonetheless fails to disclose, teach, or suggest that the determined parameters are discovered

to have the most influence on a service parameter or using the determined parameters to identify a function that provides a many-to-one mapping between such parameters and an inferred, higher-level, value associated with the service parameter. As such, for at least these reasons, Data Mining fails to cure the deficiencies of Ball that the Examiner has acknowledged.

Moreover, to the extent that Adriaans generally describes applying data mining techniques to monitored data collected in a computer network and “various relations between the monitored system state and the data on test performance success or failure,” Adriaans uses such data mining techniques in an attempt to determine relationships between a service level agreement used as a decision tree target attribute and targeted system components that form decision tree root nodes that are individually selected and analyzed. As such, Adriaans indicates “that separate decision trees would exist for each *individual* attribute targeted for evaluation, and that different attributes could be targeted, generating *different* decision trees which would offer further insight into system [] functionality” (col. 12, lines 25-36). Based on the analysis shown in these decision trees, Adriaans indicates that “an attribute list may be constructed which identifies those attributes exhibiting the best indications for health of the system.” In other words, to the extent that Adriaans describes “parameters close to the root of the decision tree generally [having] the greatest influence on performance,” Adriaans simply places the parameters in an attribute list that may be evaluated to further analyze the system.

However, Adriaans does not disclose, teach, or suggest using the parameters in the attribute list to devise or otherwise identify “a function that takes one or more input arguments corresponding to the [parameters in the attribute list] and infers the value for the service parameter from the one or more input arguments to provide a many-to-one mapping between the [parameters in the attribute list] and the value for the service parameter.” In contrast, amended independent claim 1 recites various features that relate to devising or otherwise identifying such a function, which may substantially simplify the processing that a computing device subsequently performs to determine “whether [a] service conforms to [an] agreed upon service level identified in [a] service level agreement” (i.e., because only a certain subset of various network components that support the service need be monitored, namely, those having the “most influence” on the value for the service parameter that measures the overall

performance associated with the service). As such, for at least the reason that Adriaans does not disclose, teach, or suggest identifying a function that takes one or more parameter values that most influence performance associated with a service as input arguments to infer the overall performance associated with the service, Adriaans fails to cure the deficiencies of Ball that the Examiner has acknowledged.

Accordingly, for at least the foregoing reasons, Ball, Data Mining, and Adriaans, either alone or in combination, fail to disclose, teach, or suggest each and every feature recited in amended independent claim 1. The rejection is therefore improper and must be withdrawn.

Independent claim 40 has been amended to include features similar to those set forth in amended independent claim 1. Claims 3, 5, 11-12, 30, 34-39, 41, 43, and 46-58 depend from and add features to one of amended independent claims 1 and 40. Thus, the rejection of these claims is likewise improper and must be withdrawn for at least the same reasons.

B. CLAIMS 59-64

The Examiner has rejected claims 59-64 under 35 U.S.C. § 103 as allegedly being unpatentable over Ball in view of Data Mining and Adriaans, and further in view of U.S. Patent No. 6,490,620 to Ditmer et al. ("Ditmer"). This rejection is improper and must be withdrawn for at least the reason that the references relied upon, either alone or in combination, fail to disclose, teach, or suggest each and every feature recited in the claimed invention.

More particularly, for at least the reasons discussed above, Ball, Data Mining, and Adriaans, either alone or in combination, fail to disclose, teach, or suggest "mapping . . . a plurality of component parameters monitored for [a] plurality of network components [that support a service to a] service parameter that represents the performance of the service," "executing . . . one or more data mining algorithms to discover a subset of the plurality of component parameters that have a most influence on the service parameter," and "identifying . . . a function that takes one or more input arguments corresponding to the subset of the plurality of component parameters having the most influence on the service parameter and infers the value for the service parameter from the one or more input arguments to provide a

many-to-one mapping between the subset of the plurality of component parameters and the value for the service parameter,” as recited in amended independent claim 1, for example.

Ditmer fails to cure the foregoing deficiencies of Ball, Data Mining, and Adriaans for at least the reason that the Examiner has only alleged that Ditmer relates to “the concept of a network that includes multiple domains” and “analyzing and trending [] alarms” in the various domains to correlate alarm occurrences with certain network parameters and obtain problem resolutions. However, even assuming *arguendo* that the Examiner has correctly characterized Ditmer, which Applicant does not concede, analyzing and correlating alarms across multiple domains does not fairly relate to applying results from such analysis and correlation to identify a particular “function that takes one or more input arguments corresponding to [certain] component parameters having the most influence on [a] service parameter and infers [a] value for [a] service parameter from the one or more input arguments to provide a many-to-one mapping between” such component parameters and service parameter value. As such, for at least these reasons, Ditmer fails to cure the deficiencies of Ball, Data Mining, and Adriaans discussed in further detail above.

Accordingly, for at least the foregoing reasons, the references relied upon, either alone or in combination, fail to disclose, teach, or suggest each and every feature recited in amended independent claim 1. Independent claim 40 has been amended to include features similar to those set forth in amended independent claim 1. Claims 59-64 depend from and add features to one of amended independent claims 1 and 40. Thus, the rejection of these claims is improper and must be withdrawn for at least the foregoing reasons.

CONCLUSION

Having addressed all the foregoing rejections, Applicant respectfully submits that a full and complete response has been made to the outstanding Office Action. As such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

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Respectfully submitted,

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